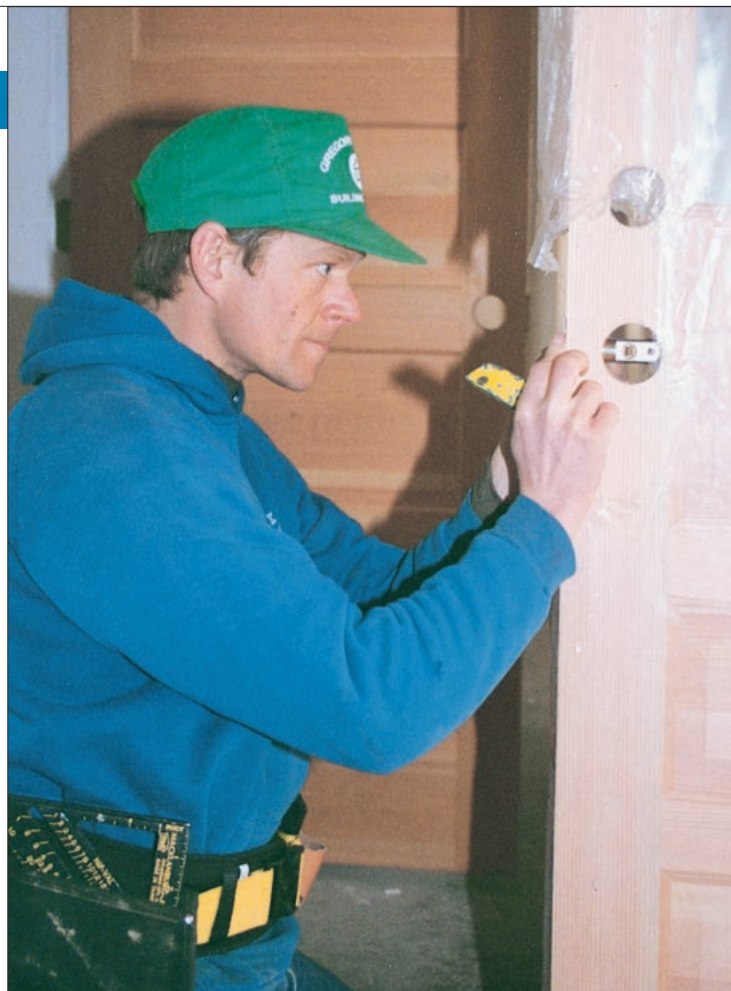


by Byron Papa

FINE-TUNING ENTRY DOOR LOCKSETS

Avoid callbacks by adjusting entry locks to allow for soft gaskets and movement in the frame



Installing a modern bored lockset in a prebored door ought to be about as easy as carpentry gets. The installation instructions, as well as some recent do-it-yourself TV shows, would lead you to believe it's a simple matter of one, two, three and it's done.

But my experience in the real world of building has lead me to a different conclusion. How many times have you had to fuss with a front door, pushing in or pulling out, to get the deadbolt to engage? There's a reason for this, and it has to do with the way modern prehung entry doors are made. In this article I'll pass on some tips I've gathered over the years on how to make sure the first impression of the house you build — the front doorknob — is a good one.

The Perils of Prebored Doors

The fact that modern entry doors are factory-bored is a mixed blessing. Although preboring is potentially a big timesaver, in reality the bores are often off-center and misaligned. This seems to happen in about half the doors I install, so it's worth checking for early. If you're

not aware of this, the resulting lock malfunction can easily chew up the time you saved by not doing the actual boring yourself.

I've found that both the 2 $\frac{1}{8}$ -inch face hole or the 1-inch edge bore can be off-center. The most common problem by far is an edge bore that doesn't line up with the prebored strike-plate hole. But I usually ignore the prebored strike-plate hole altogether, as I explain below.

More common is an edge bore that is not truly perpendicular to the lockset shaft or that does not line up with the bore in the jamb. The resulting "sticky" mechanism can sometimes be corrected by loosening one or more screws on the latch plate and shimming behind with wood shavings or a piece of cardboard (see Figure 1). If you do this, make sure to secure the loose screws with thread-locking cement (in metal doors) or 5-minute epoxy (in wood). It's absolutely imperative that the lockset be well secured, as any movement will invariably damage the door's finish before it's caught and corrected. Some less-expensive mass-produced locks seem to always

come loose, so a dab of thread-locking cement is good insurance no matter what.

Strike Plate

Once the lock is secure and operating freely, you're ready for the finicky task of installing the strike plate. This is usually the most difficult part of the job. Unfortunately, prebored strike-plate holes are typically more misaligned than the holes in the door itself. Considering all the adjustments involved, you're probably ahead of the game buying prehung doors that haven't been bored for the strike. However, if the strike plate has already been bored, my rule is to all but ignore the hole.

It's easy to determine the perfect height for the strike plate by eyeing and marking the top and bottom of the latch bolt. I do this first. It's the horizontal, or side to side, adjustment that's tricky. It's at this point that the most misunderstood aspect of modern prehung doors emerges.

Pickup Position

In older houses, the "pickup" position

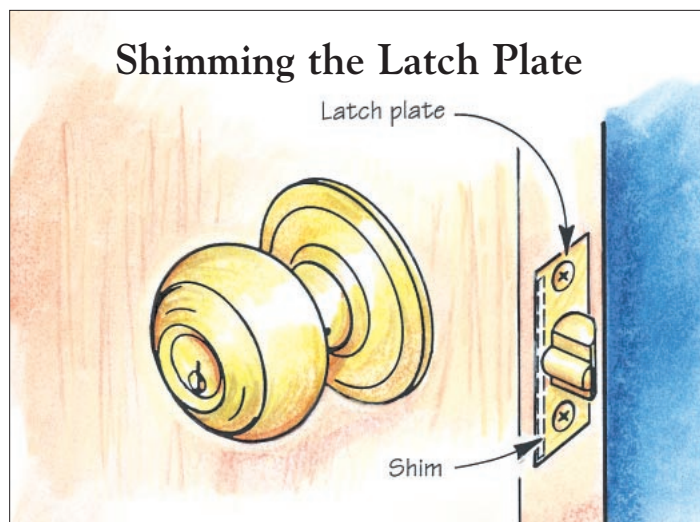


Figure 1. If the edge bore of a prebored door is not exactly perpendicular, the latch may rub or bind. The author remedies this by shimming behind the latch plate to correct the angle of the bolt.

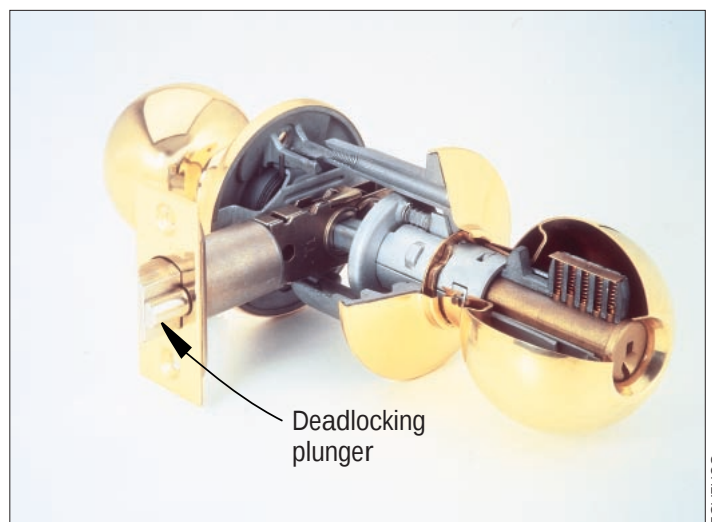


Figure 2. A “deadlocking plunger,” or “deadlatch,” prevents the latch bolt from being pried open with a credit card.

— the exact point at which the door comes to rest when shut — was easy to determine. Doors either had no gaskets at all, which made for a solid, unmistakable stopping point against the hard jamb, or stiff vinyl or metal add-on gaskets, which because they weren’t very compressible also made for a pretty fixed pickup point.

Modern gaskets, however, are soft, pliant, and highly compressible. The strike plate holds the door shut and secure, and its location determines exactly how much the door’s gaskets will be compressed. There is no longer a definite pickup point, but instead a small window of adjustment within which the pickup position will be located. The final adjustment controls not only air infiltration but also the ease of operation (the two are often at odds).

Deadlocking Plunger

To further complicate things, many modern locksets (excluding front-entry handsets matched with deadbolts) have a small “deadlocking plunger,” or “deadlatch,” just behind the latch bolt (Figure 2). This device, when it sits properly on the surface of the strike plate just behind the strike-plate hole, physically prevents the latch bolt from being jimmied with a credit card. If there is no deadbolt, the deadlocking plunger is even more important because the soft gaskets on prehung units are so easy to tear away, giving a thief more working room.

The problem is that since modern gaskets are so soft and compressible, a

good slam of the door can cause the plunger to go too far and engage itself in the strike-plate hole, instead of staying depressed on the surface (Figure 3). This, in effect, causes the door to latch $\frac{1}{8}$ to $\frac{3}{16}$ inch past its proper pickup point. The result is undue stress on the lock as well as overcompressed gaskets. Plus, there are now two possible pickup points for the door, which helps to explain why the deadbolt doesn’t always want to line up with its strike plate (since it was probably installed for the door’s proper pickup position). It also indicates that the door industry hasn’t caught up with the apparent incompatibility — new-style gaskets versus old-style bolt mechanisms.

Fiddling Around

I ordinarily try to adjust the door so that the gaskets are compressed only slightly, sealing out air, but making the door easy to close and leaving leeway for future tightening as the gaskets get older and less pliable. But if there’s a deadlocking plunger and deadbolt involved, the only way to avoid the “double pickup” problem is to set the door’s pickup position tighter in the first place. This allows the door to latch with moderate force, whereas only a strong slam would cause the plunger to falsely seat itself in the strike-plate hole.

You may have to fiddle around with the strike plate to get this right. First, install the strike plate with perfect vertical alignment, and make your best guess as for the horizontal adjustment, leaning toward an easy door shut. Now

shut the door with varying force, and notice how much gasket compression it takes to falsely trip the deadlocking plunger. Try to adjust for a pickup just behind that point. You’ll have to watch the latch bolt and deadlocking plunger carefully through the reveal. If you have trouble seeing their movement, use a felt pen, or better yet, a white-marking welder’s pencil (Liquid Paper also works) to make a series of vertical lines on them, perpendicular to their action (Figure 4). This will help you to see whether or not the deadlocking plunger is engaging.

You’ll most likely have to move the strike plate a few times to get it just right. I keep $\frac{1}{8}$ -inch dowels on hand for plugging false screw holes. Adjusting a strike plate this way, plugging and redrilling holes, seems pretty stone age, but don’t worry too much about the sloppy screw holes. Once you establish the right location, you’ll be replacing the short strike-plate screws (just as you should the hinge screws) with much longer screws that penetrate into the framing, to last for the long haul. For now, you want to find the right spot: Chew up the jamb all you want for the correct adjustment and screw the strike plate home later.

I recently came across a product that should make strike-plate installation a lot simpler. It’s the Adjust-A-Strike, from M.A.G. Engineering (15261 Transistor Lane, Huntington Beach, CA 92649; 714/891-5100). This adjustable strike plate allows you to change the side-to-side location of the strike-plate hole as

necessary (Figure 5). This means that if there's a slight difference between where the deadbolt picks up (more on deadbolts below) and where the main latch bolt picks up, you can adjust the main latch bolt pickup point to match the deadbolt. I plan to use this gadget in all my installations from now on. (Therma-Tru has included a similar product on their doors for many years, but I was pleased to come across a stand-alone version.)

Gasket Tune-Up

Some steel doors come with refrigerator-type magnetic gaskets enclosed in rubber that conform more easily to slight door and jamb distortions, allowing the door to close like a breeze while effectively sealing out the breeze. I've always liked these best. They don't depend as much on compression to make the seal, and they can be less troublesome with the guard-bolt problem, as they are not easily overcompressed.

With any groove-mounted gasket, if a door seems to be twisted, don't overly compensate by overcompressing the gaskets elsewhere. Instead, you can safely back out the gaskets with a stiff putty knife or flat paint scraper to meet the warped door. Degrease the new crack with naphtha or mineral spirits and use silicone or other rubbery-drying caulk to hold the gasket in its new position.

Deadbolts

Although the deadbolt itself can be installed on the door at any time, its latch plate must not be permanently installed until you've determined that the lockset is working properly and that the door is picking up in its optimum position. The deadbolt always follows the lock; the position of its latch plate depends on the door's final pickup point.

Most of us learned from old-time carpenters how to mark a deadbolt plunger with pencil lead or chalk, then slam the plunger into the jamb to mark the hole. But I always double-check the accuracy of this crude mark on the jamb by measuring with the thin brass extension of my folding rule. Vertically, I just eyeball it, of course.

Another sticky detail crops up at this point. With the door shut in its proper pickup position, you don't just want the deadbolt plunger to *clear* its strike-plate hole, you want it to be *centered* in the hole, both vertically and horizontally.

Finding the Pickup Point

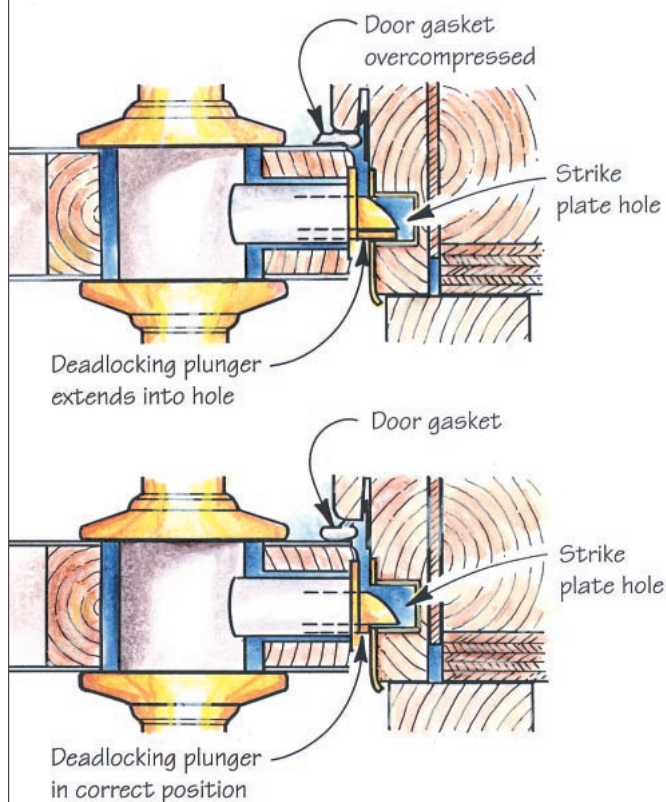


Figure 3. Because modern door gaskets are so soft and compressible, slamming the door too hard can cause the deadlocking plunger to engage in the strike-plate hole, instead of staying depressed on the surface. This creates a new pickup point for the door, which may interfere with deadbolt operation.

Deadlocking Plunger Adjustment

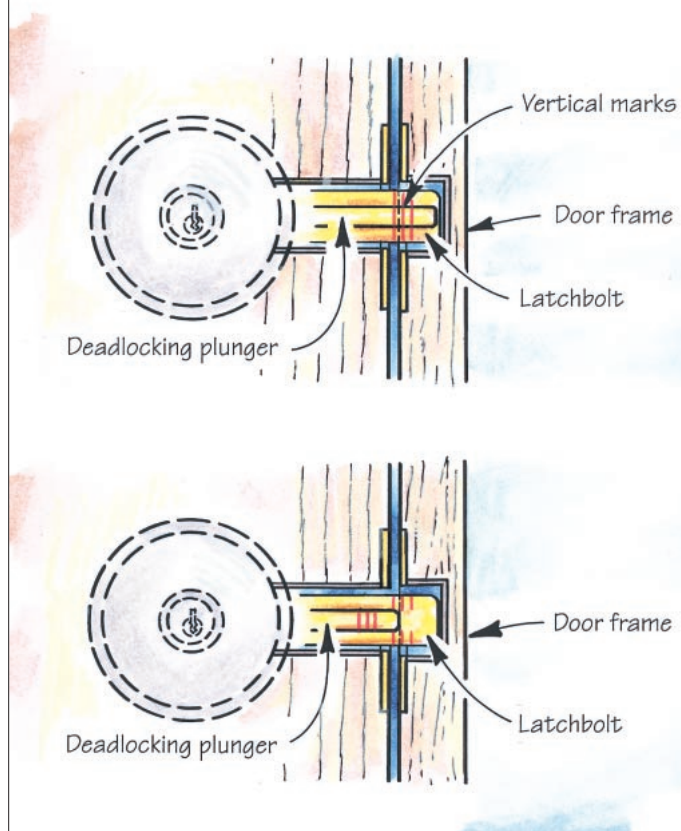


Figure 4. When trying to locate the optimal pickup position, the author makes a series of vertical marks across the latch bolt and the deadlocking plunger. If the plunger wrongly engages in the strike-plate hole, you'll be able to see the marks.

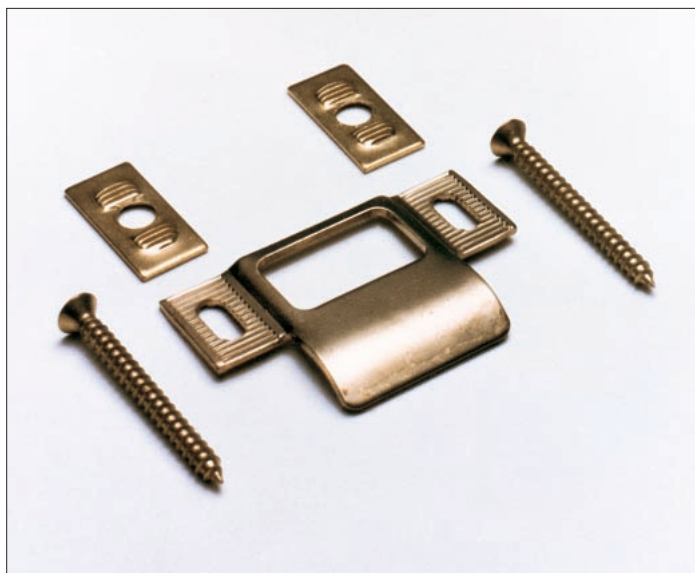


Figure 5. The Adjust-A-Strike allows you to adjust the side-to-side location of the strike-plate hole. According to the author, this can make the job of finding the perfect pickup location much easier.

This provides some leeway for future door movement, assuring long-term, trouble-free operation. For example, if the plunger is seated in the latch-plate hole but is barely clearing on one side, it will work fine for now. But any slight shift in the door's pickup position from daily use could cause the plunger to rub on the side of the strike-plate hole six months later, resulting in a daily nagging lock hang-up.

If plastic "dust buckets" are provided with the locks, I use them. But otherwise, I don't worry about whether I drill all the way through the jamb. The surrounding polyurethane foam generally keeps dust and trash from interfering with the lock.

Occasionally I've had a problem with a deadbolt that's more difficult to retract if it's allowed to extend all the way out, instead of, say, 80% of the way out. The action on these locks seems to be of an eccentric nature. The problem may not seem important, but such a deadbolt can be difficult to turn with a key, causing customer complaints. A simple, effective remedy is to install a long wood screw (I use bronze-coated deck screws) in the plunger hole and into the framing (Figure 6). By backing the screw out, you can limit the extension of the deadbolt, backing it off from full extension until it works smoothly. ■

Byron Papa is a building and remodeling contractor in the Durham/Chapel Hill, N.C., area.

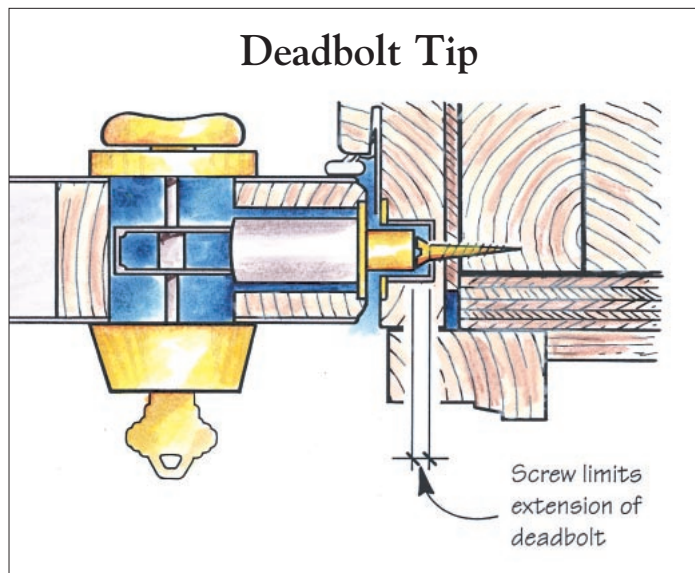


Figure 6. Some deadbolts are difficult to retract with a key if fully extended. The author installs a screw in the strike-plate hole to limit the extension of the deadbolt.

Doorhanger's Tips

- Get the best-quality entry doors your client can afford. Except for the occasional protected front entry, I generally try to steer clients away from all-wood construction. Their stability is questionable and they also have the lowest R-values. Using an *exposed* all-wood door is just asking for callbacks; if I'm requested to do it, I always advise against it. Some of the most stable and efficient doors on the market — factory-primed galvanized steel (and to a lesser extent, fiberglass) over a foam core — happen to be the least expensive.
- Pick the best studs for the door framing. Use extra nails here; it costs practically nothing and will help the entire installation to withstand the abuse that doors are put through. Make sure the trimmer studs are not twisted; otherwise, you may build a warp into the door's action.
- Don't rely on the flimsy 3/4-inch softwood jambs on most modern entry doors to hold the hinges. Use long hinge screws that go through the jamb securely into the framing. Use shims generously between the finished jambs and the trimmer studs.
- Support thresholds well. I use a combination of stiff-drying sealants, like silicone, and pressure-treated lumber slats. This helps maintain a good seal through years of being walked on.
- Use urethane foam between the jambs and framing; this is an inexpensive and effective air-sealing method. Since the foam has good R-value, apply it for the entire width of the stud.
- Remove groove-installed flexible gaskets before painting, and carefully store them away. After the jambs are painted, reinsert the gaskets for a perfect-looking paint job.
- Never install the permanent lock until the end of the job. This keeps the shiny brass locks from getting trashed with paint and scratched during construction. Use inexpensive temporary locks like Kwikset's Tylo. This way, no subcontractor ever has a real key to the house, only a master key to the temporary locks.

— B.P.